# Chapter 4 Federal-Lead Remedial Design

## 4.1 Introduction

The remedial design (RD) is a series of engineering reports, documents, specifications, and drawings that detail the steps to be taken during the remedial action (RA) to meet the goals established in the Record of Decision (ROD) and remove the site from the National Priorities List . This chapter describes the responsibilities of the Remedial Project Manager (RPM) in overseeing the development of Federal-lead RDs.

The RPM ultimately is responsible for overseeing the successful completion and implementation of the RD. The RPM's role in the RD process, however, differs depending on whether the RD is an EPA- or United States Army Corps of Engineers (USACE)-managed RD. For EPA-managed RDs, the RPM oversees the work of EPA contractors developing the RD and has more direct control over the RD effort. For USACE-managed RDs, the RPM facilitates USACE development of the RD and acts in an advisory capacity while remaining responsible for overseeing the project and ensuring that the RD meets EPA goals and objectives. The term *contracting party* is used in this chapter to refer to either EPA or USACE, since both EPA and USACE may be contracting with a remedial designer. In some instances, USACE will perform the RD in-house and will not use contractor services.

An overview of the RD process highlighting the RPM's responsibilities for EPA- and USACE-managed RDs is presented in **Figure 4-1**.

***Office of Solid Waste and Emergency Response (OSWER) Directive 9355.1-1, "Superfund Federal-Lead Remedial Project Management Handbook"; and EPA 540/R-94/022 and 103, "Response Action Contract Users' Guide, Volumes 1 and 2," provide additional information on project management.***

## 4.2 Deciding to Task the RD to an EPA Contractor or USACE

The RPM must determine whether to task the RD to an Alternative Remedial Contracting Strategy/ Response Action Contract (ARCS/RAC) contractor or to USACE. The RPM should consult with the Technical Review Team (TRT) and consider the following factors when making this determination:

- Need for on-site federal presence
- The RPM's workload and availability to manage government contractors
- Technical expertise needed for the design
- USACE and ARCS/RAC contractor experience and history
- ARCS/RAC contractors' contract capacities
- Conflict of interest (COI) screening
- Continuity with future RA activities

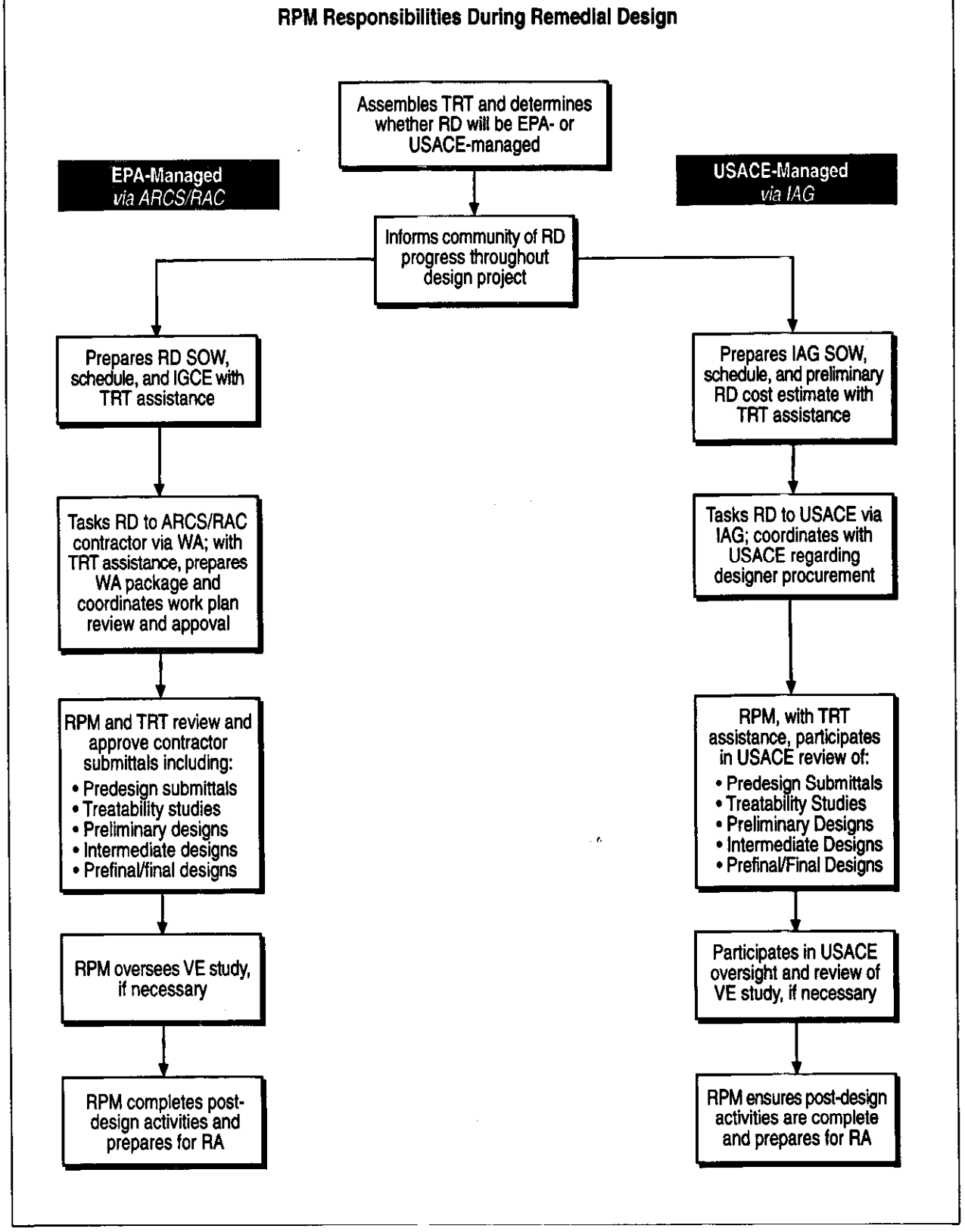
Tasking the RD to an ARCS/RAC contractor or to USACE will affect the RPM's workload and responsibilities. The interagency agreement (IAG) between EPA and USACE creates a different type of contractual relationship than the relationship between EPA and its contractors. Regardless of whether EPA or USACE manages the RD, however, the RPM remains ultimately responsible for the success of the RD.

***OSWER Directive 9242.3-08, "Revision of Policy Regarding Superfund Project Assignment Between Alternative Remedial Contracting Strategy Contractors and USACE," December 1991, provides information on using EPA contractors and USACE.***

## 4.3 Developing the Statement of Work

The RPM must prepare a statement of work (SOW) for the RD. Many RD requirements are developed during the remedial investigation (RI) and feasibility study (FS) and are detailed in the ROD and the

Figure 4-1

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RPM's project management plan (see Chapter 3). The RPM should consult the information collected to complete the RI/FS, ROD, and project management plan when preparing the RD SOW. The RPM, with TRT assistance, prepares the SOW detailing EPA's requirements for EPA-managed RDs. For USACE-managed RDs, the RPM prepares an IAG SOW for the RD, which outlines EPA RD requirements. USACE develops the RD SOW with RPM assistance using the RD IAG SOW as a framework.

### 4.3.1 Preparing the Remedial Design Statement of Work

The RPM is required to prepare RD SOWs for EPA-managed designs that are contracted out through ARCS contracts or RACs. The SOW for EPA-managed designs must be very detailed because the SOW becomes a legally binding component of the ARCS/RAC contract. An RPM must prepare an SOW for USACE-managed designs as part of the IAG between EPA and USACE. The IAG SOW for USACE-managed designs, prepared with assistance from USACE, facilitates communication between EPA and USACE regarding design requirements. The IAG is discussed in section 4.4.2.

#### SOW for EPA-managed RDs

The RD SOW is the most important document that an RPM prepares during the RD/RA process because it establishes the framework to implement the remedy. An inadequate, incomplete, or inaccurate definition of the work to be completed by the remedial designer will affect adversely the time, cost, and effectiveness of the site remediation. The SOW must describe clearly the RD requirements to prevent the designer from incorporating unnecessary or insufficient components into the design. The RPM must understand EPA's site remediation goals and what is required to achieve them before preparing the SOW.

Work is allocated to ARCS/RAC contractors by issuing a work assignment (WA). Each WA includes a detailed SOW that describes the work to be completed as part of the WA. Each ARCS/RAC contract contains standard tasks outlining the work to be performed under the contract and includes standard tasks for RD WAs. When developing an SOW for an RD WA, the RPM should use the standard tasks listed in the contract as a basic SOW framework and expand the framework to incorporate site-specific requirements.

Standard tasks, in addition to simplifying SOW development, provide EPA with a consistent method of tracking WA costs. In RACs, WA tasks and subtasks compose the work breakdown structure (WBS). The WBS simplifies the tracking of monthly WA costs because the contractor must report costs in the WBS format. The RD standard tasks for RACs are listed in **Figure 4-2.**

Figure 4-2

**EPA Contractor RD Standard Tasks (RACs)**

| | |
|---|---|
| **Task 1** | Project planning and support |
| **Task 2** | Community relations |
| **Task 3** | Data acquisition |
| **Task 4** | Sample analysis |
| **Task 5** | Analytical support and data validation |
| **Task 6** | Data evaluation |
| **Task 7** | Treatability study/pilot testing |
| **Task 8** | Preliminary design |
| **Task 9** | Equipment/services/utilities |
| **Task 10** | Intermediate design |
| **Task 11** | Prefinal/final design |
| **Task 12** | Post remedial design support |
| **Task 13** | Work assignment closeout |

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The benefits of using a WBS include:

- Establishing a common framework for activities within each EPA Region
- Facilitating SOW template development
- Simplifying the monthly tracking of WA costs
- Enabling RPMs to use EPA historic cost databases to prepare independent government cost estimates (IGCEs)

An OSWER Directive, *Guidance for Scoping the Remedial Design*, details the items and concerns to incorporate when developing the RD SOW. **Appendix E** contains a model RD SOW that may be used to develop a site-specific SOW. The directive recommends that RPMs use the following guidelines:

- List all possible SOW tasks in the order indicated in Figure 4-2, but only provide task information relevant to the design. Do not delete or change the order or numbering of the standard tasks. For example, if it appears that data acquisition will not be required as part of the RD, the SOW should state, "Task 3: Not required." The RD SOW can be amended later to include Task 3 requirements if necessary.
- Specify all deliverables and their due dates and include the methods for evaluating them.
- Instruct the contractor to use existing RI/FS site-specific plans whenever possible. For example, the health and safety plans (HASPs), sampling and analysis plans (SAPs), and emergency response plans (ERPs) prepared for the RI/FS can be reused during the RD with minor modifications or addenda.
- Require justification prior to any resampling effort. Additional sampling consumes time and resources and should be avoided if possible. The RPM also must re-examine the RI/FS data quality objectives (DQOs) to ensure that they are appropriate for the RD.
- Incorporate standard design specifications by reference for the designer to use wherever possible. Many portions of an RD are not site-specific and can be adapted from previously prepared specifications. USACE has developed treatment-specific design specifications that can benefit EPA-managed projects. A listing of these standard design specifications appears in **Figure 4-3**. The design specifications may be obtained from USACE's Huntsville Construction Division.
- Specify that design submittals conform to the Construction Specification Institute (CSI) format or a locally supported format. If USACE is expected to manage the RA, the submittals must conform to USACE's specification format contained in ETL 1006, *Technical Requirement for Pre-design and Design Submittals.*
- In situations where ARCS/RAC contractors design the remedy and USACE procures RA services, the ARCS/RAC contractor must be available for consultation during the RA. The RA SOW should include the coordination between the RD contractor and USACE as a separate task or subtask (see section 5.2.4 for more information on RA SOWs). Significant RPM coordination with USACE personnel, including the USACE resident engineer, is required to ensure that the RA WA is in place when the RD WA is completed. This will help ease the transition from one remedial phase to the next.

**Figure 4-3**

**USACE Standard Design Specifications**

*USACE has developed the following treatment-specific design specifications:*

- Air Stripping
- Asbestos Abatement
- Blower, Off-Gas: Treatment Systems
- Chemical Feed Systems
- Clearing and Grubbing
- Contractor Chemical Data Quality Control
- Filtration Systems
- Geomembrane Barriers for Landfill Covers
- Geonet
- Geosynthetic Clay Liner
- Low Permeability Clay Liner
- Monitoring Well Installation
- Piping, Off-Gas: Treatment Systems
- Plate and Frame Filter Press
- Remediation of Contaminated Soils and Sludge by Incineration
- Removal of Underground Storage Tanks
- Safety, Health, and Emergency Response (reviewed by the EPA/Labor Task Force)
- Separation/Filtration Geotextile
- Soil/Bentonite Slurry Cutoff Walls
- Solidification/Stabilization of Contaminated Materials

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### *Design Contractor's Responsibility for Quality Control*

The RPM must require as part of the SOW that the contractor perform internal design reviews. Internal design reviews are a cornerstone of the contractor's quality control (QC) program and are carried out by members of the design team to ensure delivery of a quality product to EPA. The RPM will review

contractor QC methodologies as part of the work plan review.

The most important QC activities generally performed by a design contractor are: plan-in-hand reviews and correlating drawings and specifications. Plan-in-hand reviews are performed by the design contractor at the end of the design by visiting the site and comparing the current site conditions with the design drawings and making any appropriate corrections.

Correlating drawings and specifications is a structured process to coordinate the drawings and specifications among the various engineering disciplines using the process flow diagrams (PFDs) and the piping and instrumentation diagrams (P&IDs) as the templates to cross-check the design and ensure that errors or omissions are discovered and corrected. For example, this review may find that mechanical drawings indicate equipment with different horsepower ratings than those shown on electrical drawings. This review will be performed before submission of the prefinal design to the contracting party (see section 4.7.6).

#### SOW for USACE-Managed RDs

The relationship between EPA and USACE during USACE-managed RDs is outlined in the IAG. Although the RPM prepares the IAG SOW, USACE prepare the designer's RD SOW. It is strongly recommended, however, that the RPM prepare an effective IAG SOW and work with USACE to prepare a design SOW. Clear lines of communication between the two agencies will increase project quality and reduce unnecessary delays.

The IAG SOW does not need to contain the same level of detail as an RD SOW prepared for an EPA contractor because USACE functions as an extension of EPA and is free to develop its own RD specifications. The IAG SOW prepared by the RPM could define only the major project requirements, schedule, all known constraints, funding issues, and roles and responsibilities, but also should contain any communications requirements between USACE and EPA, an oversight cost estimate, and any special reports to be generated for the RPM.

All predesign information also must be made available as part of the SOW provided with the IAG.

When developing the IAG SOW, the RPM, in conjunction with the TRT, is encouraged to meet regularly with USACE representatives to discuss the project requirements and EPA's expectations.

Ideally, USACE should be involved in the RI/FS as part of the RPM's TRT as soon as it is expected to be a USACE-managed RD. Early involvement is invaluable in establishing a good working relationship between the agencies and minimizes schedule delays when changing from EPA's RI/FS contractor to USACE. The RPM also must firmly establish early in the relationship that he or she will be involved in the USACE design contract SOW preparation. Cooperation between the agencies during RD SOW preparation prevents the need to modify the designer's contract or delivery order, a process that takes additional time. Negotiating changes after contract award historically has taken several months to complete and has resulted in prolonged interruptions in design work.

Most difficulties incurred by an RPM when working with another agency are caused by lack of communication between both parties. Failure to use the expertise of TRT members, particularly when the RPM is not intimately familiar with engineering and construction, can compound the communication difficulties. Early and frequent interaction may prevent these types of problems from occurring and will help define each agency's roles and responsibilities.

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***OSWER Directive 9355.0-43, "Guidance for Scoping the Remedial Design," March 1995; ETL 1006, "Technical Requirement for Predesign and Design Submittals"; and EPA 540/R-94/022 and 103, "Response Action Contract Users' Guide, Volumes 1 and 2," provide additional information to assist the RPM in preparing the RD SOW.***

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### 4.3.2 Developing a Preliminary Remedial Design Schedule

The RPM prepares a baseline RD schedule as part of the SOW development process. During the work plan approval process, a highly detailed RD schedule (developed by the contractor) will be negotiated between the parties. The RPM should ensure adherence to the detailed RD schedule to

successfully manage an RD (see section 3.9). For EPA-managed RDs, EPA has developed remedy-specific RD schedules for each of the nine categories that encompass the range of technologies being used to remediate NPL sites. These categories are listed in **Figure 4-4**. The generic schedules are based on historical data from previous EPA contracts. The OSWER Directive, *Guidance for Scoping the Remedial Design*, contains remedy-specific RD schedules divided into EPA contractor standard tasks. An RPM can adapt these schedules to formulate a preliminary or baseline RD schedule based on the standard tasks in the site-specific RD SOW.

Figure 4-4

**Principal Remediation Categories for RD Schedules**

- Groundwater Treatment - Complex
- Groundwater Treatment - Simple
- Groundwater Treatment - Simple (Expedited)
- Treatment of Soils/Sludge - Complex
- Treatment of Soils/Sludge - Simple
- Civil Engineering - Complex
- Civil Engineering - Simple
- Civil Engineering - Simple (Expedited)

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During USACE-managed RDs, USACE personnel develop the RD schedule with RPM input and cooperation. The schedule cannot be modified by the designer without prior approval from the contracting party. The RPM must be available as needed to resolve issues that affect the schedule.

Once the schedule has been developed and approved, the RPM should enter the information into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). The RPM continually must update the CERCLIS information as the RD and RA progress. CERCLIS, however, is not to be used to supplement the RPM's own scheduling efforts. The RPM's master schedule should be the primary document; CERCLIS is merely an administrative tracking device and is not suitable or intended to be used as a project management tool.

### 4.3.3 Developing the Remedial Design Independent Government Cost Estimate

An IGCE is an estimate of the cost required to complete a project. *Federal Acquisition Regulation* (*FAR*) Part 36.605 requires that an IGCE be prepared for each contract or contract modification (such as a WA) expected to exceed $25,000. The accuracy of the IGCE depends on the detail provided in the SOW. After the RD SOW is completed, the RPM must complete an IGCE for EPA-managed RDs and is strongly encouraged to complete a similar cost estimate for USACE-managed RDs. The RPM is responsible for updating CERCLIS with the cost estimate information and confirming that RD funds are available before the actual design work begins.

#### IGCEs for EPA-Managed RDs

If EPA is the contracting party, the RPM, as the Work Assignment Manager (WAM) for the RD, is required to prepare an IGCE before issuing the WA. OSWER Directive 9355.0-43, *Guidance for Scoping the Remedial Design*, provides basic information to estimate the level of effort (LOE) for each of the standard tasks using the principal remediation categories in Figure 4-4. These LOE estimates are derived from data collected from previous EPA contracts. The RPM should consider the use of these estimates only as a starting point in developing a more site-specific cost estimate. Before preparing an IGCE, the RPM should contact the Regional IGCE coordinator who is available to assist the RPM with the format, content, and review of the estimate.

#### IGCEs for USACE-Managed RDs

An RPM is not required to prepare an IGCE as part of the IAG with USACE. USACE prepares the IGCE when developing a site-specific contract for design services or an indefinite delivery work order under their preplaced/indefinite delivery contracts. Although not required to prepare an IGCE, the RPM should develop a rough estimate before entering into RD scoping discussions with USACE. Comparing independent RD cost estimates is an effective means of determining whether both parties fully comprehend the scope of the design activity. It also helps resolve potentially difficult issues such as USACE travel costs, the number of staff involved,

and the duration of the design process.

## 4.4 Tasking the Remedial Design

The RD is tasked to ARCS/RAC contractors by issuing an RD WA and to USACE through an IAG. The RPM's responsibilities for tasking the RD to an EPA contractor or to USACE and for managing the progress of the RD are discussed below.

### 4.4.1 Tasking the Remedial Design to an EPA Contractor

EPA orders work from ARCS/RAC contractors by issuing a written WA to the contractor. The WA is a legally binding part of the EPA contract with the contractor and generally contains the project background, scope of work, project schedule, a list of deliverables, approved LOE, documentation requirements, and restrictions on contractor travel, printing, or other activities. This section does not describe the entire WA management process but provides a brief overview of basic WA procedures. This section describes:

- Preparing and issuing the RD WA package
- Issuing RD WA amendments and modifications
- Closing out the RD WA

The WA process is described in greater detail in other references listed at the end of this section.

#### Preparing and Issuing the RD WA Package

The RPM prepares a WA package to initiate a new WA. The WA package is reviewed by the Project Officer (PO) and reviewed and approved by the Contracting Officer (CO) before being issued to the contractor. The WA package must include the following:

- Work assignment form (WAF)—The WAF is a one-page form used to track the various actions required to initiate, approve, amend, and complete a WA. The WAF also includes the approved expenditure limit that provides the RPM with the means to control the funds available to the contractor and allows the RPM to manage the phasing and execution of the WA.
- SOW—The SOW is a clear description of the work required of the contractor. The SOW includes a detailed breakdown of work, all required deliverables, work quality requirements, and delivery schedule (see section 4.3).
- IGCE—An IGCE is the RPM's cost estimate for the cost of performing the work detailed in the SOW. The IGCE is used by the CO to negotiate WA costs with the contractor and must *never* be disclosed in *any* fashion to the contractor (see section 4.3.3).
- Nomination and appointment of Contracting Officer's representative (COR) form, EPA Form 1900-65a—Form 1900-65a is used to designate the WAM for the new WA. The RPM usually will function as the WAM for RD WAs.
- Procurement request (PR), EPA Form 1900-8—The PR is used to commit funds to individually funded WAs. If a WA is bulk funded, as most RAC WAs are, funds are committed by indicating the expenditure limit on the WAF.
- Work assignment allocation matrix—The work assignment allocation matrix is used to identify which ARCS/RAC contractor will receive the WA. (This form is added to the WA package by the PO.)

After the PO reviews the WA package for accuracy and completeness, it is submitted to the CO for final review and approval. The CO signs the WAF, issues the WA to the contractor, and returns copies of the approved WA to the RPM and PO.

Once the ARCS/RAC contractor has received the WA, the contractor attends a scoping meeting with the RPM, TRT, and PO and, possibly, the CO to discuss the WA. The contractor prepares and submits a work plan that describes the contractor's proposed approach for completing the WA tasks. Any required changes to the work plan will be negotiated with the contractor by the CO with assistance from the PO and RPM. A revised work plan will be submitted by the contractor if significant changes are required. The RPM and PO oversee the approval of the contractor work plan or revised work plan.

#### Issuing RD WA Amendments and Technical Direction

The unforeseen complications inherent with RD work require a certain degree of EPA and contractor flexibility. Site conditions may exist that were not considered when the WA SOW and contractor work plan were prepared. The necessary response to the new site conditions may affect the approved scope, LOE, or dollar values and require revisions to the WA. There are two methods for clarifying the WA: issuing technical direction or amending the WA.

##### *Issuing Technical Direction*

The RPM may issue technical direction to assist the contractor in completing the WA. Technical direction should be issued in the form of a technical direction memorandum and may be issued in response to a contractor question, to clarify provisions in the SOW or EPA-approved work plan, in response to project or site activities, or to comment on or document approval of contractor deliverables. Technical direction, however, cannot be used to change the scope or budget of the WA.

##### *Amending the WA*

A WA amendment is required for changes to the WA scope when funds or LOE above the approved work plan budget are needed or when funds or LOE levels need adjustment. If the WA amendment will increase the WA cost by more than $25,000, the RPM must prepare an IGCE for the amendment. The CO issues final approval for all WA amendments. The contractor is required to submit a revised work plan to incorporate WA amendment changes. The revised work plan is approved using the same procedures used to approve the original work plan.

The RPM can increase or decrease WA funding for bulk-funded WAs by preparing a WAF and increasing or decreasing the expenditure limit. The RPM submits the WAF to the PO for review and the PO presents it to the CO for final review and approval. For individually-funded WAs, the RPM must prepare a PR and an amended WAF and forward them to the CO for processing. The RPM must consult with the Region's Information Management Coordinator to ensure, prior to increasing WA funding, that additional RD funds are available.

The RPM must also remain aware of the ARCS/RAC WA period of performance and extend the period as necessary. The RPM extends the period of performance by updating the WAF and submitting it for PO review and CO review and approval. The RPM must update CERCLIS with all WA changes that affect the WA budget or schedule.

#### Closing Out the RD WA

The final task in each WA is WA closeout. WA closeout involves:

- RPM, PO, CO, and contractor evaluations of contractor performance
- Organizing and retiring WA files
- Site demobilization, if necessary
- Verifying and processing final WA costs

The WA is considered complete upon approval of the final deliverable and receipt of the final invoice. After the WA is complete, the RPM evaluates the contractor using the WA completion report (WACR) form. The PO, CO, and contractor also complete WACRs.

The RPM is responsible for organizing and retiring WA files and ensuring that contractor files are properly organized and retired. The RPM also must coordinate the return of all government property in the contractor's possession that will not be used by the contractor during the RA.

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***OSWER Directive 9242.6-01, "ARCS Work Assignment Management—Field Guide," January 1989; EPA/540/G-89/008, "ARCS Contracts Users' Manual"; and EPA 540/R-94/022 and 103, "Response Action Contract Users' Guide, Volumes 1 and 2," provide additional information on the WA process.***

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### 4.4.2 Tasking the Remedial Design to USACE

The RD is tasked to USACE with an IAG. An IAG is a written agreement negotiated between agencies that allows an agency to purchase goods and services from another agency. All Superfund IAGs are similar in that they contain special conditions for records retention, reporting, and cost recovery. For RD/RA projects, there are three types of IAGs between EPA and USACE: RD IAGs, RA IAGs, and technical assistance IAGs. **Appendix D** contains model RD and RA IAGs. This section refers to RD IAGs. Each

type of IAG may be executed in one of three ways—as a generic IAG, as an incrementally funded IAG, or as a two-phase IAG.

A Region and USACE may have a long-standing generic IAG between them with sufficient funding for EPA to task USACE with the preliminary RD/RA planning and cost estimate. Some Regions prefer using one generic IAG with USACE to initiate RD projects. After the initial planning and preparation is complete, the RPM prepares an RD IAG for the actual design.

Incrementally funded IAGs are used for specific projects with USACE. EPA prepares an IAG with limited funding. The limited funding allows USACE officials to procure a design firm and meet with the RPM and define and shape the RD SOW (including schedule and budget). EPA approves the start of the actual design work by amending the IAG to increase the available funding. Additional funds can be added to the IAG when needed as the remedial work progresses. This approach requires more paperwork than using one generic IAG.

A two-phase IAG is an older form of IAG that is similar to incrementally funded IAGs. Like the incrementally funded IAG, the two-phase IAG begins with limited funds to allow initial consultations between EPA and USACE. The second phase, however, requires the preparation of an additional IAG to increase the scope of work and increase the available funding and, therefore, requires additional time and paperwork to complete. Many Regions have adopted the incrementally funded IAG approach and no longer use the two-phase approach.

This section provides a brief overview of basic IAG procedures. These procedures include:

- Preparing and executing the IAG
- Preparing IAG amendments and increasing funding
- Closing out the IAG

### Preparing and Executing the IAG

The RPM prepares the IAG package for PO and CO approval. The IAG review and approval procedures vary by Region. The RPM, therefore, should follow Regional guidance concerning specific IAG procedures. The IAG package contains the following documents and may contain additional Region-specific documents:

- EPA Form 1610-1—the EPA standard IAG form that includes the RD SOW and schedule
- Attachment A, "Special Conditions for Design IAGs"—a summary of special conditions developed for Superfund to deal specifically with cost documentation requirements (Attachment A contains requirement lists for design IAGs)
- Decision Memorandum—memorandum from the Program Administrator requesting the Regional Administrator's signature approving the IAG
- Commitment Notice—the format and content are Region-specific

While the IAG should be as detailed as possible, the Office of General Counsel (OGC) has determined that EPA may not unilaterally impose its QA/QC requirements in IAGs. The specific QA/QC requirements must be negotiated into the IAG on a case-by-case basis.

Once the IAG is signed by the designated EPA Regional official, it is forwarded to USACE for signature by the responsible authority. It is then returned to the EPA Region so funds can be transferred by the Regional budget staff.

Separate IAGs are necessary for RDs and RAs due to the different funding authorization and tracking codes assigned to each activity.

### Preparing IAG Amendments and Increasing Funding

Changing site conditions may require the IAG to be amended. Amendments also may be necessary if the scope of the activity changes or additional funds are needed to complete the design. The same process for executing the original IAG must be followed to amend an IAG. The RPM also must be aware of the time required to complete the design and be prepared to extend the period of performance as necessary.

### Closing out the IAG

IAGs must be closed out upon completion and all remaining funds deobligated for recertification and use at other Superfund sites. The RPM initiates

closeout activities when at least one of the following conditions exists:

- No further activities will take place
- All expenditure commitments have been met

The RPM prepares a written closeout request that states there will be no further activity under the IAG, that EPA has received the services stated in the agreement, and that all invoices have been paid. The RPM prepares a letter for the designated EPA Regional official's signature requesting USACE to begin IAG closeout activities. The closeout activities are designed to certify completion of the design effort and resolve any outstanding costs. The RPM should consult Region-specific guidance for additional IAG closeout activity information.

### 4.4.3 Managing the Progress of the Remedial Design

The RPM is responsible for managing RD progress. There are several methods that an RPM can use to manage the design effort and ensure compliance with the requirements established in the RD SOW. The level of oversight required to manage the RD successfully depends on whether USACE or an ARCS/RAC contractor is responsible for the design. When USACE develops the RD in-house or oversees the RD contract, the design document will be in accordance with the *Federal Acquisition Regulation (FAR)*; therefore, any design effort managed or performed by USACE does not require as much scrutiny as an EPA contractor design effort.

The methods available to the RPM for overseeing EPA- and USACE-managed designs require effective use of TRT members' experience and expertise. The specific methods are discussed below.

#### Managing ARCS/RAC RDs

EPA-managed RDs are tasked to ARCS/RAC contractors with an RD WA. EPA contracts are cost-reimbursement contracts and, therefore, require close governmental control. The RPM must proactively manage ARCS/RAC contractor performance to ensure that work is satisfactorily completed and the government is receiving goods and services commensurate with costs billed.

The RPM cannot assume that the design effort will be performed exactly as required. He or she, with the assistance of the TRT, must actively oversee and manage contractor performance with the objective of assuring that contractor activities meet the requirements of the RD SOW. There are a number of effective ways that an RPM can manage RD WA progress, including:

- Inspecting work—Unannounced inspections may reveal that design work is not being performed as expected. If a contractor concentrates all work effort into a short time period before an EPA submittal delivery date, the design quality may suffer. If Regional travel budgets do not allow the RPM to visit the contractor, the progress reports can function as the primary inspection tool. Work inspections and progress reports also allow a preview of the final RD submittal so that revisions may be incorporated before the final design is prepared. Inspections also allow the RPM and TRT to determine if the contractor is staffing the project to the levels and with the individuals promised.
- Telephone communications—Frequent RPM communication with the contractor is important to establish EPA's expectations for a quality contractor work effort. The contractor is more likely to report any difficulties or issues encountered if the RPM is readily available to offer quick solutions. A scheduled time and day for weekly contact should be maintained throughout the duration of the WA.
- Meetings with contractor personnel—The RPM should schedule regular meetings with contractor personnel. Meetings typically occur after major deliverables have been submitted and reviewed by EPA. Additional progress meetings may be appropriate, particularly for complex sites, and should include the appropriate TRT members.
- Comparing progress with work plan schedule—The RPM must determine if the contractor is performing according to the work plan schedule. A transmittal register such as the one provided in **Appendix B** is a useful tool for tracking deliverable due dates, submittal dates, and EPA responses.

- Reviewing progress and financial management reports—The ARCS/RAC contracts require specific reporting requirements and additional reporting requirements may be specified in the WA. The progress reports allow the RPM, with TRT assistance, to evaluate contractor performance and progress. The financial reports provide information detailing how government funds are spent and give the RPM the opportunity to question contractor expenses and ensure that sufficient funds remain in the WA budget to complete the design effort. ARCS/RAC contractors are required to notify EPA when 75 percent of the approved funds have been expended. The RPM should seek any clarification on the monthly progress or financial reports review procedures from the PO.
- Reviewing deliverables—The RPM must review all contractor deliverables to ensure that they meet the RD SOW requirements. It is strongly recommended that the RPM use the TRT to review design deliverables. The RPM is responsible for ensuring that the reviews are completed within the allotted time frames to prevent delaying the contractor.

The RPM, as part of the RD WA management process, also must examine the contractor staffing mix and provide constant feedback to the contractor regarding overall WA performance. These RPM activities are described below.

#### Monitoring Contractor Personnel

The quality of contractor output depends on contractor personnel competence. The RPM must ensure, with TRT assistance, that the design project personnel are qualified to perform the work according to the SOW standards. The RPM should clearly define personnel experience and qualifications needed in the RD SOW and ensure that the contractor work plan complies with SOW's personnel requirements. The RPM should continue to oversee the contractor personnel mix throughout the life of the RD.

The RPM should be familiar with and discourage several problematic contractor practices. Frequently the contractor staff that prepare the work plan are not the same individuals assigned to work on the design. Some contractors also are plagued by rapid personnel turnover that negatively affects design quality. Finally, the RPM should verify that the professional levels and contractor personnel are being used as described in the approved work plan.

To determine if such difficulties are occurring, the RPM should thoroughly review the monthly progress reports. If inadequacies with the labor mix or personnel involved with the design are suspected, the RPM may request all contractor personnel information, including résumés and position descriptions, to evaluate personnel qualifications. The RPM, with assistance from the PO, should immediately inform the contractor of any problems related to contractor personnel and take necessary steps to resolve the difficulties.

#### Providing EPA Feedback to the Contractor

The RPM should be in regular contact with the ARCS/RAC contractor throughout the RD WA. The RPM establishes the tone for the project and by his or her actions conveys this tone to others involved with the project. The RPM must provide the contractor with regular feedback regarding contractor performance so the contractor understands EPA expectations and delivers a product consistent with or exceeding those expectations. The RPM must inform the contractor immediately of any inadequacies because the longer a difficulty remains undiscussed, the more difficult it is to resolve.

There are several guidelines for the RPM to consider when providing EPA feedback to the contractor:

- Avoid delay—Give feedback immediately when reviewing a contractor submittal or when a problem is discovered.
- Be specific—Indicate specific problems and provide examples.
- Keep records—Record when and what feedback was given. A memorandum should be prepared and sent to the contractor documenting the problem, discussion, and resolution. A copy of the memorandum should be placed in the WA file. (The RPM should seek PO input and assistance when resolving contractor problems.)

- Reinforce positive performance—Give positive, as well as negative, feedback where appropriate.
- Remain consistent with the WA scope of work—Changes to the scope of work require concurrence by the CO.

Under term-form WAs, available under ARCS and RACs, the contractor is only required to give its "best effort" in performing the work. For this reason, diligent monitoring and frequent discussions with the contractor are necessary to prevent the government from paying for poor performance that will be claimed later as best effort. Information on the use of term- and completion-form WAs is available in the *RAC Users' Guide*.

#### Managing USACE RDs

Roles and responsibilities governing EPA and USACE actions have been established in a national memorandum of understanding (MOU). The MOU, however, does not relieve the RPM of the responsibility for managing RD progress, ensuring that ROD requirements are met, and ensuring that the RD is completed on schedule and within the budget agreed to by both parties.

After executing the IAG, USACE personnel, with the RPM's assistance, establish the RD completion schedule. The RPM must work with USACE to identify the deliverables that EPA will review and EPA's review schedules. The RPM may use USACE's computerized schedule management system that feeds into the Regional WasteLAN database to monitor RD progress.

The RPM receives monthly progress reports and a copy of Standard Form-1080 (for requesting payment) from USACE. Although EPA has adopted the direct cite payment process for USACE-managed projects, the RPM should still receive and review monthly vouchers. The direct cite payment process allows USACE rather than the RPM to certify the invoice for payment. All monthly reports contain a description of both USACE in-house and contractor activities. The national MOU does not preclude the RPM from questioning USACE expenditures and requesting additional documentation, including project time sheets, to review vouchers submitted by USACE. If the RPM believes that there are inaccurate charges, he or she should notify the PO for further direction. EPA can request reimbursement from USACE for disputed fund transfers.

A communication strategy should be included in the IAG. As part of this strategy, the RPM should schedule routine meetings and conference calls with USACE to oversee the RD effort. It is imperative that the RPM maintains contact with USACE during the design phase because the RPM is ultimately responsible for the design effort.

***OSWER Directive: 9355.5-14 FS, "EPA/USACE PAYMENT PROCESS Direct Cite/Revised Reimbursement Methods," May 1990, provides additional information on the EPA/USACE IAG payment procedures. EPA 540/R-94/022 and 103, "Response Action Contract (RAC) Users' Guide, Volumes 1 and 2," provide additional information on term- and completion-form WAs.***

## 4.5 Procuring a USACE Designer

After an IAG is executed between EPA and USACE, the USACE design districts have several design procurement options available. These options include:

- In-house (USACE) design
- Use of indefinite delivery (IDT) architecture/ engineer (A/E) contracts
- Total environmental restoration contracts (TERCs)
- Site-specific A/E contracts

In general, procurement of a site-specific contract takes six months and initiation of work by an IDT contractor typically takes 60 days. Initiation of work by a TERC contractor varies depending on the requirements.

USACE may need to procure a contractor to prepare the design if in-house services are not available and preplaced contracts are not being used. USACE begins the designer procurement process by preparing a USACE version of the EPA project management plan (see Chapter 3). The USACE project management plan details the procedures for

contracting and managing the project. The RPM should request a copy of the plan from the USACE project manager and review it to ensure EPA requirements are met.

USACE must undertake certain contractor procurement activities after completing its project management plan, including:

- Summarizing the project requirements in the *Commerce Business Daily* (*CBD*), a government solicitation publication used to announce available federal contracts
- Developing the design contractor preselection list
- Contacting designers on the preselection list to determine interest in the project
- Developing a designer selection list containing at least three interested firms
- Making a tentative designer selection

The USACE project manager will work with the RPM to meet EPA requirements for contract action at a site.

***OSWER Directive 9355.5-05, "Procedure for Use of USACE Preplaced Contracts to Expedite Superfund Cleanup Tasks," April 1994, provides additional information on USACE preplaced contracts.***

## 4.6 Reviewing and Approving the Work Plan (ARCS/RACs)

The ARCS/RAC contractor describes its proposed technical approach for completing the requirements of the RD SOW in the work plan. **Figure 4-5** outlines the general contents of a contractor work plan. Additional predesign phase submittals may be included as part of the work plan or may be submitted shortly thereafter. These submittals are discussed in section 4.7.2.

After receiving the work plan, EPA must complete the following tasks:

- Review the work plan to ensure that the contractor understands and incorporates all EPA requirements

**Figure 4-5**

**Components of a Work Plan**

- Statement of project goals
- Description of each task/deliverable
- Project schedule identifying task and deliverable completion dates
- Proposed RA contracting strategy
- Proposed personnel
- Areas requiring clarification or anticipated problems
- Proposed use of subcontractors with discussion of how the effort will be managed by the prime contractor
- Detailed cost proposal broken down by task and subtask, including subcontractor cost breakdown (using WBS)
- COI statement
- Drawing register listing all drawings and specifications that will be prepared

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- Negotiate with the contractor to modify or clarify the work plan
- Approve the work plan

### 4.6.1 Reviewing the Work Plan

The RPM performs a comprehensive technical review and cost analysis immediately upon receipt of the work plan. The purpose of the review is to ensure that the ARCS/RAC contractor fully understands the scope of the project and that the proposed technical approach, schedule, and staffing are complete, reasonable, and comply with the RD WA requirements.

The technical review includes a work plan evaluation by professionals familiar with the RD process who have the knowledge, skills, and experience necessary to evaluate the technical aspects of the work plan. The RPM's TRT should receive a copy of the work plan as soon as it is available and should be consulted as part of the RPM's technical evaluation of the work plan. The RPM also must conduct a cost analysis that includes reviewing the individual cost elements of the work plan and comparing them with the IGCE. The RPM should provide explanations for variances between EPA and contractor cost estimates to the CO and suggest methods for resolving the differences through negotiations.

When reviewing the work plan, the RPM must ensure that the following questions are answered

adequately:

- Is the proposed work reasonable, appropriate, and complete?
- Does the work plan respond to the RD SOW and do the proposed tasks fit the RD SOW or does the work plan unnecessarily exceed SOW work requirements?
- Are the skill mix and number of LOE hours appropriate for the tasks? Is the level of subcontracting necessary and appropriate for the design effort?
- Are the schedules and milestones reasonable and acceptable?
- Are travel and other direct costs necessary, reasonable, and appropriate?
- Are the contractor personnel qualifications appropriate for the work?
- Has the contractor defined problems that require EPA resolution?
- Are there any issues that require CO or PO attention?

The ARCS/RAC contractor must provide its recommended RA contracting strategy as part of the work plan (see section 5.4). This strategy must include the proposed procurement methods, the type of design specification (performance versus detailed), and phasing/fast-tracking alternatives. The RA contracting strategy influences the overall design effort in terms of schedule and budget and must be agreed upon before the contractor expends design resources.

The RPM summarizes his or her review of the work plan in a memorandum to the PO and CO. The PO and CO review the RPM's report and recommendations and may request additional information from the RPM before CO approval.

### 4.6.2 Negotiating with the Contractor

The RPM, PO, and CO work plan reviews may reveal that the proposed contractor work plan does not meet EPA technical requirements, cost estimates, or both. The RPM, PO, and CO should meet and discuss the need for work plan negotiations with the contractor. The CO, with assistance from the PO and RPM, develops the negotiating position. The CO represents EPA in all negotiations with the contractor and must ensure that negotiation records adequately document negotiation results.

The RPM and PO assist the CO in preparing the EPA negotiating strategy by reviewing the earlier RPM work plan recommendation memorandum to ensure that it adequately:

- Details variances between the RD SOW and contractor work plan.
- Examines the work plan from the contractor point of view and indicates contractor strategy or possible motivation.
- Determines instances where contractor variance with the SOW is due to contractor knowledge of the site or previous RD experience and where contractor variance appears to indicate a misunderstanding regarding EPA objectives. These determinations are especially important when the contractor has made substantive or material changes from the SOW.
- Lists all recommended changes to the work plan.
- Provides a list of issues and proposed changes for the PO and CO to consider.

The CO shall maintain written documentation of the significant differences between the government and contractor negotiation positions. Additionally, documentation for the government's negotiating position, why changes were made, and the results of the actual negotiations must be created and retained. After successful negotiations and after the contractor submits the revised work plan, the RPM reviews it to ensure that all negotiated changes are incorporated and that the work plan does not contain additional modifications not agreed upon during negotiations. The RPM may require the contractor to note or highlight all deletions, additions, and revisions to the work plan. The work plan areas that are not marked do not need to be as thoroughly reviewed by the RPM. After completing his or her review, the RPM prepares another work plan review memorandum recommending work plan approval or outlining items for further negotiation and submits it to the PO and CO for their review.